REMARKS

Applicants thank the Examiner for the thorough examination of the application. Attached to this paper is a European Decision on Opposition for the Examiner's convenience and review. No new matter is believed to be added to the application by this Amendment.

Request For Interview

The Examiner is respectfully requested to contact Robert E. Goozner (Reg. No. 42,593) at 703-205-8000 in order to arrange a telephonic Interview in order to discuss the patentability of the Invention.

Status Of The Claims

Claims 1, 3, 4, 6-25 and 29-31 are pending in the application. Support for the amendments to claim 1 can be found in claim 13 and in the specification at page 7, lines 21-22. Claim 30 recites subject matter canceled from claim 1. Claims 3, 4, 6 and 9 have been amended to correspond to the amendments to claim 1 and to claim 30. Claim 31 finds support in Figure 1 and in the specification at page 9, lines 17-27.

Claim Objections

The Examiner objects to claims 1 and 9 as being identical claims. However, claim 9 sets forth limitations pertaining to discontinuously backflushing. In comparison, claim 1 has no recitation of backflushing. As a result, claim 9 clearly is not identical to claim 1.

Rejection under 35 U.S.C. § 103(a)

Claims 1, 3, 4, 6-25 and 29 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Bernier (U.S. Patent No. 5,834,571) in view of de Lorenzo (U.S. Patent 4,535,134). Applicants respectfully traverse as follows, and reconsideration and withdrawal of this rejection are respectfully requested.

The present invention pertains to a method of producing a polymer in a continuously operated gas phase reactor. Of the many embodiments of the present invention, claim 1 typically sets forth a novel combination of steps that includes polymerizing at least one monomer in a bed containing active catalyst formed by catalyst and polymer particles suspended in a fluid, the bed defining a fluidized bed level in the reactor; continuously withdrawing polymer powder from the reactor; adjusting a discharge rate of the polymer powder so as to maintain a constant bed level during polymerization; and separately recovering particle agglomerates from the reactor by discontinuously withdrawing the particle agglomerates.

Distinctions of the invention over Bernier have been placed before the Examiner. Also, Bernier was cited as reference D3 in the attached opposition to corresponding European Patent No. 1159305. The de Lorenzo patent was cited as reference D7 in the attached opposition to corresponding European Patent No. 1159305.

The only place where Bernier refers to continuous withdrawal is at column 4, line 16. Bernier fails to give any specific teaching about how this continuous withdrawal should be arranged. The discussion at column 19, line 21 to column 20, line 3 of Bernier is irrelevant because it is clearly directed to intermittent withdrawal. Thus, Bernier only says that the

polymer can be withdrawn continuously but fails to give any teaching on how this should be done.

In contrast, the present invention is not directed to a continuous withdrawal of polymer alone but to a combination of continuous withdrawal of polymer powder and separate recovery of agglomerates.

That is, one way the invention can be practiced is by (i) withdrawing the particle agglomerates from the reactor, and (ii) adjusting the discharge rate using a continuously operated control valve (*see*, e.g., claim 13). Further, the originally filed claims (and currently amended claim 1) set forth that the agglomerates were withdrawn and separately recovered. As discussed at page 7, lines 21-22 of the specification, the agglomerates are either withdrawn together with the powder or separately from the powder. Separate removal of the agglomerates (as is set forth in claim 1) can be accomplished by using an outlet located near the level of the distributor plate (claim 31).

As further evidence for the patentability of the present invention, the Examiner is respectfully requested to note that the corresponding European patent number 1159305 was opposed, and the claim granted at the EPO was equivalent to instant claim 1 of the present invention. The Opposition Division rejected the opposition. In the Decision, it stated that the combination of the features of "continuously withdrawing polymer powder from the reactor" and "withdrawing and separately recovering particle agglomerates from the reactor" was neither disclosed nor suggested in any of the prior art documents cited in the opposition. The conclusion regarding Bernier (D3 in the opposition) is given in the paragraphs at the bottom of page 3 and at the top of page 4 of the Decision. When the inventive step (which can be compared to

obviousness) was discussed at page 6 of the Decision, the Opposition Division concluded that there was no prior art document that would have shown that the combination of the features of the claim would have provided a solution to the problems identified in the patent. Thus, the claim was considered as inventive.

Accordingly, Bernier has no disclosure or suggestion about how the continuous withdrawal of polymer powder should be arranged. Bernier additionally fails to disclose or suggest the combination of continuous withdrawal of polymer powder and separate withdrawal of the agglomerates. Although the Examiner may turn to de Lorenzo for teachings pertaining to a control valve, these teachings of Lorenzo fail to address the deficiencies of Bernier in disclosing or suggesting the combination of continuous withdrawal of polymer powder and separate withdrawal of the agglomerates. As a result, one of ordinary skill in the art would not be motivated by Bernier and Lorenzo to produce a claimed embodiment of the present invention. A *prima facie* case of obviousness has thus not been made.

Further, the present invention shows unexpected results. These results are discussed in the specification at page 4, line 29 to page 5, line 1. These results are also demonstrated in the Example versus the Comparative Example in the specification. The advantages of the invention are thus clear.

This rejection is overcome and withdrawal thereof is respectfully requested.

Information Disclosure Statements

The Examiner is thanked for considering the Information Disclosure Statements filed May 11, 2001 and August 30, 2001 and for making the initialed PTO-1449 forms or record in the

application most recently in the Office Action mailed October 29, 2004. The Examiner is thanked for considering the Information Disclosure Statement filed May 13, 2005 and for making the initialed PTO/SB/08 form of record in the application in the Office Action mailed June 1, 2005.

The Drawings

The Examiner has found the drawing figures to be acceptable in the Notice of Allowability mailed March 11, 2005.

Foreign Priority

The Examiner has acknowledged foreign priority most recently in the Office Action mailed February 15, 2006.

CONCLUSION

A full and complete response has been made to all issues as cited in the Office Action. Applicants have taken substantial steps in efforts to advance prosecution of the present application. Thus, Applicants respectfully request that a timely Notice of Allowance issue for the present case.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Robert E. Goozner (Reg. No. 42,593) at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Dated: July 17, 2006

REC

Respectfully submitted,

By_____

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Attachment: Opposition Decision

I. Summary of Facts and Submissions

1. The European patent application No. 99 972 228.3 claiming priority FI 982456 of 12 November, 1998 was filed on 12 November, 1999 by Borealis Technology Oy, Porvoo (FI) (Proprietors). The mention of the grant of the European patent thereon was published on 28 April, 2004 under no. 1 159 305 in the Bulletin 2004/18.

2. An oppositions against the above patent was filed on 28 January, 2005 by BP Chemicals LTD, Sunbury-on-Thames (GB), which is now Innovene Europe LTD, Staines (GB) (Opponents). The revocation of the patent as a whole under Art. 102 (1) EPC was requested on grounds of lack of novelty and lack of inventive step (Art. 100 (a) EPC) as well as on grounds of insufficient disclosure (Art. 100 (b) EPC). The Opponents relied on the following prior art publications:

   D1: EP-A-0 830 892
   D2: EP-B-0 381 364
   D3: US-A-5 834 571
   D4: JP-A-03 229 633
   D5: Powder and Bulk Engineering, 1987, H. Feldmann
   D5': Powder and Bulk Engineering, 1997, G. Stolhanske
   D6: US-A-5 939 027
   D7: US-A-4 535 134
   D8: WO 97/04015
   D9: EP-A-0 870 539

   Only those documents are referred to in Section II. which were discussed by the parties and which are considered to be relevant to this Decision.

3. The Proprietors filed a counterstatement with the letter of 04 July, 2005 including an Auxiliary Request with a new set of claims 1-28. It was requested that the opposition be rejected or, in the alternative, be maintained in amended form on the basis of the claims of the Auxiliary Request.

4. The Opposition Division identified the issues to be discussed during the hearing in the annex to the summons to attend Oral proceedings dated 03 November, 2005.

5. Oral Proceedings were held on 20 February, 2006 (see minutes).

II. Reasons for the Decision

1. The opposition is admissible because it meets all the requirements of Articles 99 (1) and 100 EPC and of Rules 1 (1) and 55 EPC.
The issue of a decision is permissible since the parties have had an opportunity to comment on the grounds upon which the decision is based (Article 113 EPC).

2. **Sufficiency of the disclosure (Articles 100 b) and 83 EPC)**

Although, the Opponents withdrew their corresponding objection at the beginning of the Oral Proceedings, the following is stated:
The concerns expressed by the Opponents are considered to relate to a clarity problem, which is not a ground for opposition, rather than to the alleged lack of sufficient disclosure.
The Opponents argued that the skilled person would not have sufficient clear information so as to rework the claimed process. In particular, it was emphasised that there would be no clear information showing how to perform the "separate recovery of agglomerates" via the upper/lower withdrawal pipes shown in Fig. 1.
The Opposition Division is of the opinion that the specification of the opposed patent in combination with the general knowledge of the expert (see eg T 206/83 or T 32/85) provides sufficient information so that the invention can be reworked over the whole range claimed.
Both embodiments, namely the withdrawal of particle agglomerates directly from the reaction vessel via a separate outlet or the withdrawal of agglomerates from the continuous flow of the polymer powder are explained in detail, and are schematically shown in the Figures 1+2.
In case that a separate outlet is used, this is located in a lower position than the outlet functioning as a continuous discharge system, whereas a screen is used for separating the agglomerates from the continuous flow of the polymer powder (see Fig. 2). The Opposition Division is further convinced that the skilled person knows from his general common knowledge how to select necessary, suitable means (eg a grid having appropriate dimensions) for putting into practice these embodiments.

3. Novelty (Articles 100 (a), 52 (1) and 54 (2) EPC)

The independent claim 1 defines a process comprising the following essential features (F) which may be summarized as follows:

F1: a method of producing a polymer in a continuously operated gas phase reactor comprising the steps:

F2: polymerising at least one monomer in a bed containing active catalyst formed by catalyst and polymer particles suspended in a fluid, said bed defining a fluidized bed level in said reactor,

F3: continuously withdrawing polymer powder from the reactor,

F4: adjusting the discharge rate of the polymer powder so as to maintain a constant bed level during polymerisation, and

F5: withdrawing and separately recovering particle agglomerates from the reactor.

The language of feature **F5** is to be analysed carefully so as to avoid any ambiguity and/or misunderstanding of the true scope of this feature. The Opposition Division considers that **F5** includes two basic aspects, the first being that the particle agglomerates are withdrawn (at any position, and according to one embodiment illustrated in Fig. 1; together with the polymer particles as shown in Fig. 2) from the reactor, and the second being that the particle agglomerates are separately recovered, ie that said "withdrawal and recovery" may be a true post-polymerisation process step as emphasized by the Opponents.

A corresponding method of discharging polymer from a continuously operated gas phase reactor comprising slightly modified (different wording) features F3 to F5 is defined in claim 14. A corresponding apparatus is specified in claim 26. Hence, the conclusion reached for claim 1 is considered to apply to claims 14, and 26 in the same way.

The Opponents stated that the entirety of the above features would be disclosed directly and/or inherently in **D3**, ie there was implicit agreement that the entirety of process features F1 to F5 cannot be taken from D1, or D2, as it can be seen from the Proprietors' correct analysis given in writing.
After a long dispute about the meaning of feature F5, and the corresponding disclosure of D3, the Opponents finally agreed that there is no explicit disclosure of a "separate recovery" of particle agglomerates in this document.

The Opponents concluded that the process of D3 includes a continuous withdrawal of polymer product (see eg col. 4 lines 15/16) and that there would be inherent disclosure of a "separate recovery of agglomerates".
Since, the Opponents could not provide suitable evidence for the latter allegation, the Opposition Division came to the conclusion that the second aspect of F5 is not disclosed directly and unambiguously in D3, and that there is no document on file teaching the entirety of process features F1 to F5.
Hence, the novelty of the challenged process, and the corresponding apparatus was acknowledged.

4. Inventive step (Articles 100 (a), 52 (1) and 56 EPC)

The objective technical problem underlying the contested patent may be formulated as the provision of a continuously operated gas-phase polymerisation having an effective and high throughput, and also having a low-cost discharge system allowing a polymer take-out without any disturbance of the polymerisation, thereby insuring that the downstream equipment is not adversely affected. In addition, the process should be "flexible" in that it allows simple increase of its capacity (cf. paragraphs [0008]-[0011], and [0019]-[0021]).
Having regard to the Example according to the invention (see paragraphs [0057] to [0059]) and the Comparative Example (see the conventional, batchwise product outtake system described in paragraphs [0053] to [0056]), the Opposition Division is satisfied that the above problem has been solved successfully.
The truly continuous process of the invention shows increased capacity, and at the same time reduced oscillation of the bed level being an additional advantage of the present invention.

The Opponents offered two approaches which were deemed to show the alleged lack of an inventive step:

The Opponents were of the opinion that the closest prior art D1 taken in conjunction with the teaching of D2 would render obvious the present process.

Although, D1 shows the gas-phase polymerisation of olefins including a specific product discharge system (see Fig. 1), it does not disclose a truly **continuous** process. The passages identified by the Opponents (page 3 col. 3 lines 51/52,

and page 8 col. 13 lines 1-3) do not show a process for the continuous polymerisation including a continuous polymer take out (see also page 4 col. 5 lines 27-41, and Fig. 7). There is also no disclosure of a **separate recovery of particle agglomerates**. Finally, D1 is concerned with a different object which does not take into account the problems associated with the presence of agglomerates in a continuous process. As indicated on page 3 col. 3 lines 2-11, the inventors of D1 sought for an improved discharge system allowing a simplified an efficient way of withdrawing the product from a fluidized-bed reactor, while reducing the proportion of the reaction gas mixture withdrawn from the polymer, and avoiding blocking of the discharge system.
For these reasons, the Opposition Division does not recognize any clear information in D1 which would prompt the skilled person to carry out the necessary modifications so as to arrive at something falling within the terms of claim 1 with a reasonable expectation of success having regard to the desirable improvements achievable therewith.
Similar considerations apply to the teaching of D2. This patent does not disclose or fairly suggest a truly **continuous** process (see eg page 3 col. 3 lines 51/52, page 4 col. 6 lines 35/36, page 5 col. 7 lines 28-30, and page 5 col. 8 lines 41-51) nor does it suggest a **separate recovery of polymer agglomerates** (see page 2 col. 2 line 32 et seq. and page 4 col. 6 lines 35-53). Like D1, D2 has a different object which is the minimisation of the quantity of fine particles which might cause blocking of the dust separator, and as a consequence, an enhancement of the reaction velocity leading to an increase of production efficiency (see col. 2 lines 45 et seq.). In contrast, the challenged invention aims at an improved recovery of agglomerates within a continuous process, irrespective of the probability whether, and in which amount, or when the undesirable form of product may be formed. Taking into account the different objects identified in D1, and D2 in comparison to the contested patent, the skilled person would not have consulted these prior art documents, and even if he would have done so, the entirety of features F1-F5 are not disclosed in or derivable from the combined full contents of D1+D2.

The Opponents were also of the opinion that feature F5 would represent a commonly known post-polymerisation process feature, and that this "common knowledge" in combination with the teaching of D3 would show that the present process would not involve an inventive step.

Whilst it may be true that a separate recovery of polymer agglomerates may be well known to those skilled the art, and which could (see could/would approach) have been taken into consideration, the Opponents have not submitted any evidence for this contention.
It is emphasized that there is no prior art showing that feature **F5** in combination with F1 to F4 would provide a solution to the problems identified in the patent in suit. Therefore, this second approach must fail as well.

In summary, the cited prior art does not show a lack of an inventive step.

5. Conclusion

The Opposition Division is of the opinion that the grounds for opposition mentioned in Art. 100 EPC do not prejudice the maintenance of patent unamended. Thus, it is decided to reject the opposition under Art. 102 (2) EPC.